

PATENT  
**Case No. DE020081**  
(7790/495)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re patent application of:	)	
	)	Confirmation No.: 8056
LURKENS, PETER, <i>et al.</i>	)	
	)	Examiner: AMADIZ, R.
Serial No.: 10/509,410	)	
	)	Group Art Unit: 2629
Filed: SEPTEMBER 23, 2004	)	
	)	
For: IMAGE PROJECTOR WITH	)	
LIGHT SOURCE MODULATION	)	
ACCORDING TO IMAGE	)	
SIGNAL	)	

**APPEAL BRIEF**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313

Dear Sir:

Please consider Appellants' brief as follows:

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1. REAL PARTY IN INTEREST

The real party in interest is the assignee of record U.S. Philips Corporation, a Delaware corporation having an office and a place of business at 1251 Avenue of the Americas, New York, New York 10020-1104.

2. RELATED APPEALS AND INTERFERENCES

Appellants and the undersigned attorneys are not aware of any appeals, judicial proceedings, or any interferences which may be related to, directly affect or be directly affected by, or have a bearing on the Board's decision in the pending appeal.

3. STATUS OF CLAIMS

Claims 1-13 are pending.

Claims 1-3 and 5-13 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,479,187 to Chen (the *Chen* patent) in view of U.S. Patent No. 7,034,895 to Okunuki, *et al.* (the *Okunuki* patent).

Claim 4 was rejected under 35 U.S.C. §103(a) as being unpatentable over the *Chen* patent in view of the *Okunuki* patent and further in view of U.S. Patent No. 6,739,723 to Haven, *et al.* (the *Haven* patent).

Claims 1-13 are the claims on appeal. *See* Claims Appendix.

4. STATUS OF AMENDMENTS

The Appellants submitted an Amendment and Response dated September 22, 2008, but the Examiner did not enter the proposed claims as noted in the Advisory Action mailed October 21, 2008. No other amendments were submitted after the final Office Action mailed July 21, 2008.

5. SUMMARY OF CLAIMED SUBJECT MATTER

In this Summary of Claimed Subject Matter, all citations are to the specification of United States Patent Application 10/509,410. All citations are illustrative only and additional support for the cited element may be found elsewhere in the specification. *See* FIGS. 1-5; page 2, line 24, through page 8, line 19.

Independent Claim 1

Method for enhancing brightness and contrast in images provided by a projection-based presenter utilising a display panel (5) illuminated by at least one scrolling band of light and a lamp (3) as a light source for said at least one scrolling band of light (*See* FIGS. 1, 5; page 5, line 25, through page 6, line 20; page 7, line 33, through page 8, line 8),

wherein said method comprises modulating the light output of said lamp (3) between different scrolling positions in a way that a higher light intensity is supplied by said lamp (3) when parts of said display panel (5) currently representing brighter parts of a respective image are illuminated by said at least one scrolling band of light than when parts of said display panel (5) currently representing less bright parts of said image are illuminated by said at least one scrolling band of light (*See* FIGS. 3, 4; page 2, line 24, through page 3, line 28; page 6, line 21, through page 7, line 32),

wherein relative brightness of the parts of said image is determined from the maximum brightness in the parts of said image (*See* FIGS. 3, 4; page 6, line 21, through page 7, line 32).

Dependent Claim 2

Method according to claim 1, wherein the average light intensity over time supplied by said lamp (3) for an entire image is kept constant. *See* page 4, line 8 through line 12; page 7, line 6 through line 10.

Dependent Claim 3

Method according to claim 1 or 2, wherein said projection-based presenter utilises at least one vertically scrolling band of light, and wherein the light intensity supplied by said lamp (3) is adjusted for each horizontal line. *See* page 4, line 32, through page 5, line 2.

Dependent Claim 7

Method according to claim 6, wherein the maximum aperture in each of said rows is adjusted to 100%, and wherein the other apertures of each of said rows are adapted such that a non-distorted brightness reproduction is maintained in each row. *See* page 7, line 3 through line 5; page 4, line 1 through line 7.

Claim 6 recites a method according to claim 1, wherein said display panel (5) comprises adjustable apertures arranged in a matrix of rows and columns, and wherein changing fractions of said rows are illuminated by said at least one scrolling band of light. *See* page 5, line 3 through line 6.

Dependent Claim 8

Method according to claim 6, comprising: determining the maximum brightness of an image that is to be projected in each scrolling position; adjusting the apertures of said display panel (5) for each scrolling position in accordance with said image in a way that the maximum aperture is 100%; determining for each scrolling position the relative power which has to be provided to said lamp (3) for achieving said determined maximum brightness with said maximum aperture of 100% while maintaining the relation to the brightness of the other image parts; scaling the overall power level such that the average power of the lamp corresponds to a rated power level. *See* FIG. 2; page 6, line 21 through line 23.



Claim 6 recites a method according to claim 1, wherein said display panel (5) comprises adjustable apertures arranged in a matrix of rows and columns, and wherein changing fractions of said rows are illuminated by said at least one scrolling band of light. *See* page 5, line 3 through line 6.

Dependent Claim 10

Projection based presenter according to claim 9 comprising a display panel (5) with adjustable apertures arranged in horizontal lines; a lamp (3) for providing light for a projection; power supply means (1,2) for providing said lamp (3) with an adjustable power; a scanner (4) for directing said light output by said lamp (3) to said display panel (5) in subsequent horizontal bands; a lens (6) for projecting an image provided by said display panel (5); and an image processor (8) for receiving an image that is to be projected and for controlling the power supply (2) to said lamp (3) and the size of said adjustable apertures of said display panel (5) according to a received image. *See* FIGS. 1, 5; page 5, line 25, through page 6, line 20; page 7, line 33, through page 8, line 8.

Claim 9 recites a projection based presenter utilising a display illuminated by at least one scrolling band of light, which presenter comprises means (2,3,4,5,6,8) for carrying out the steps of claim 1. *See* FIGS. 1, 5; page 5, line 25, through page 6, line 20; page 7, line 33, through page 8, line 8.

Independent Claim 12

Image processor (8) for a projection-based presenter utilising a display panel (5) illuminated by at least one scrolling band of light and a lamp (3) as a light source for said at least one scrolling band of light (*See* FIGS. 1, 5; page 5, line 25, through page 6, line 20; page 7, line 33, through page 8, line 8), comprising:

means for determining relative brightness of parts of a respective image from the maximum brightness in the parts of said image (*See* FIGS. 3, 4; page 6, line 21, through page 7, line 32); and

means for controlling a power supply to said lamp (3) for different scrolling positions in a way that a higher light intensity is supplied by said lamp (3) when parts of said display panel (5) currently representing the brighter parts of said image are illuminated by said at least one scrolling band of light than when parts of said display panel (5) currently representing the less bright parts of said image are illuminated by said at least one scrolling band of light (*See* FIGS. 1, 3, 4, 5; page 2, line 24, through page 3, line 28; page 5, line 25, through page 6, line 20; page 6, line 21, through page 8, line 8).

Independent Claim 13

Regulation and controlling system for a projection-based presenter utilising a display panel (5) illuminated by at least one scrolling band of light and a lamp (3) as a light source for said at least one scrolling band of light, said regulation and controlling system comprising an image processor (8) determining the amount of power which has to be supplied to said lamp (3) for different scrolling positions (*See* FIGS. 1, 5; page 5, line 25, through page 6, line 20; page 7, line 33, through page 8, line 8)

in order that a higher light intensity is supplied by said lamp (3) when parts of said display panel (5) currently representing brighter parts of a respective image are illuminated by said at least one scrolling band of light than when parts of said display panel (5) currently representing less bright parts of said image are illuminated by said at least one scrolling band of light (*See* FIGS. 3, 4; page 2, line 24, through page 3, line 28; page 6, line 21, through page 7, line 32), and

said regulation and controlling system further comprising a lamp power regulator (2) supplying said lamp (3) with power, which lamp power regulator (2) adjusts the power supplied to said lamp (3) according to the respectively required power determined by said image processor (8) (*See* FIGS. 1, 5; page 5, line 25, through page 6, line 20; page 7, line 33, through page 8, line 8),

wherein relative brightness of the parts of said image is determined from the maximum brightness in the parts of said image (*See* FIGS. 3, 4; page 6, line 21, through page 7, line 32).

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-3 and 5-13 are unpatentable over U.S. Patent No. 5,479,187 to Chen (the *Chen* patent) in view of U.S. Patent No. 7,034,895 to Okunuki, *et al.* (the *Okunuki* patent) under 35 U.S.C. §103(a).

Whether claim 4 is unpatentable over the *Chen* patent in view of the *Okunuki* patent and further in view of U.S. Patent No. 6,739,723 to Haven, *et al.* (the *Haven* patent) under 35 U.S.C. §103(a).

7. ARGUMENTS

The Appellants respectfully submit that claims 1-3 and 5-13 are allowable over U.S. Patent No. 5,479,187 to Chen (the *Chen* patent) in view of U.S. Patent No. 7,034,895 to Okunuki, *et al.* (the *Okunuki* patent) under 35 U.S.C. §103(a), and that the rejection of claims 1-3 and 5-13 should be reversed.

Further, the Appellants respectfully submit that claim 4 is allowable over the *Chen* patent in view of the *Okunuki* patent and further in view of U.S. Patent No. 6,739,723 to Haven, *et al.* (the *Haven* patent) under 35 U.S.C. §103(a), and that the rejection of claim 4 should be reversed.

I. Claims 1-3 and 5-13 are patentable over the *Chen* patent in view of the *Okunuki* patent under 35 U.S.C. §103(a).

Obviousness is a question of law, based on the factual inquiries of 1) determining the scope and content of the prior art; 2) ascertaining the differences between the claimed invention and the prior art; and 3) resolving the level of ordinary skill in the pertinent art. *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). *See* MPEP 2143.03.

Claims 1-3 and 5-13 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,479,187 to Chen (the *Chen* patent) in view of U.S. Patent No. 7,034,895 to Okunuki, *et al.* (the *Okunuki* patent).

The Appellants respectfully assert that the *Chen* patent and the *Okunuki* patent, alone or in combination, fail to disclose, teach or suggest each and every element of the Appellants' invention as claimed, as required to maintain a rejection under 35 U.S.C. §103(a). The *Chen* patent and the *Okunuki* patent fail to disclose:

a method for enhancing brightness and contrast in images wherein relative brightness of the parts of said image is determined from the maximum brightness in the parts of said image, as recited in independent claim 1;

an image processor including means for determining relative brightness of parts of a respective image from the maximum brightness in the parts of said image, as recited in amended independent claim 12; or

a regulation and controlling system for a projection-based presenter wherein relative brightness of the parts of said image is determined from the maximum brightness in the parts of said image, as recited in amended independent claim 13.

At most, the *Okunuki* patent discloses detecting the average luminance level for one frame (or one field) of the video signal, and outputting an amplification coefficient depending on the detected average luminance level. The APL detection circuit obtains the average picture level (APL) of the luminance level of the video area in the entire video signals of one frame (or field). These operations are, for example, realized using a well-known integrator circuit. *See* Abstract; column 6, lines 52-64. In the Response to Arguments section on Page 10 of the Office Action dated July 21, 2008, the Examiner asserted that the *Okunuki* patent must find the maximum and minimum luminance levels to obtain the average luminance level, so that the *Okunuki* patent implicitly uses the maximum value to determine the relative brightness of the parts. The Appellants respectfully disagree. While the maximum and minimum luminance levels in the *Okunuki* patent are data points that enter into calculation of the APL, the *Okunuki* patent uses the maximum luminance level for nothing further. All the data points over the frame are summed, such as by using the disclosed well-known integrator circuit. The magnitude of the maximum luminance level only has a minimal effect on the APL and fails to determine anything, let alone the relative brightness as claimed. The *Okunuki* patent treats the maximum luminance level as just another data point.

In the present application, the image controller 8 first analyses the profile of the maximum brightness of the received image. The determined decreased or increased power for all horizontal lines of one image form a lamp power profile, which is forwarded by the image controller 8 to lamp power regulator 2. A corresponding lamp power profile, which was determined based on the brightness profile of FIG. 3, is depicted in the diagram of FIG. 4. *See below.* In FIG. 3, horizontal line number is presented on the X-axis and pixel brightness is presented on the Y-axis. Curve 31 shows maximum pixel brightness in the horizontal line, curve 32 shows minimum pixel brightness in the horizontal line, and curve 33 shows average pixel brightness in the horizontal line. In FIG. 4, horizontal line number is presented on the X-axis and normalised values are presented on the Y-axis. The FIG. 4 diagram shows an optimised power profile for the case that the maximum pixel aperture is 100% in each of about 350 rows. A first curve 41 indicates the lamp power determined for all rows. The lamp power is normalised with the maximum lamp power used, i.e. the maximum lamp power corresponds to a value of 1. The value of 1 represents for this curve 42 an aperture of 100% selected for all maximum apertures. *See Figures 1, 3, and 4; page 6, line 24 through page 7, line 32.*

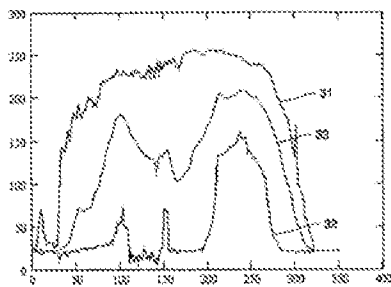


FIG.3

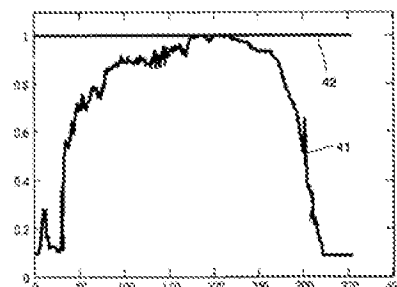


FIG.4

The difference between using maximum brightness or average brightness to determine the relative brightness is apparent from the following example using values from the figures. From the brightness profile of FIG. 3 above, at horizontal line 100 the average pixel brightness from curve 33 is 175 and the maximum pixel brightness is 220. At horizontal line 165, the average pixel brightness from curve 33 is 110 and the maximum pixel brightness is 250. Calculating the relative brightness from the

maximum brightness as claimed gives a relative brightness between lines 100 and 165 of 220:250 or 0.9. Calculating the relative brightness from the average values as suggested by the Examiner gives a relative brightness between lines 100 and 165 of 175:110 or 1.6. Thus, using the average brightness rather than the maximum brightness yields dramatically different results for relative brightness.

Claims 2, 3, and 5-11 depend directly or indirectly from independent claim 1 and so include all the elements and limitations of independent claim 1. The Appellants therefore respectfully submit that dependent claims 2, 3, and 5-11 are allowable over the *Chen* patent and the *Okunuki* patent for at least the same reasons as set forth above for independent claim 1.

Regarding dependent claim 2, the *Okunuki* patent discloses that the light quantity of the light source is reduced when the displayed image is dark, but fails to disclose the average light intensity over time supplied by said lamp (3) for an entire image is kept constant, as claimed. *See* column 5, lines 12-19.

Regarding dependent claim 3, the *Okunuki* patent discloses level control means for detecting average brightness of the displayed image according to the video signal, and controlling the level of the reference signal output from the light quantity control means depending on the detected brightness, but fails to disclose the light intensity supplied by said lamp (3) is adjusted for each horizontal line, as claimed. *See* column 4, lines 4-8.

Regarding dependent claim 7, the *Chen* patent discloses an LCD operating effectively as a light valve (thus it is referred to as a "passive" display device), allowing transmission of light in one state and blocking transmission of light in a second state, but fails to disclose the maximum aperture in each of said rows is adjusted to 100%, and the other apertures of each of said rows are adapted such that a non-distorted brightness reproduction is maintained in each row, as claimed. *See* column 1, lines 18-22.



Regarding dependent claim 8, the *Okunuki* patent fails to disclose determining the maximum brightness of an image that is to be projected in each scrolling position; adjusting the apertures of said display panel (5) for each scrolling position in accordance with said image in a way that the maximum aperture is 100%; determining for each scrolling position the relative power which has to be provided to said lamp (3) for achieving said determined maximum brightness with said maximum aperture of 100% while maintaining the relation to the brightness of the other image parts; scaling the overall power level such that the average power of the lamp corresponds to a rated power level, as claimed. *See* the discussion of independent claims 1, 12, and 13 above.

Regarding dependent claim 10, the *Chen* patent discloses an LCD operating effectively as a light valve (thus it is referred to as a "passive" display device), allowing transmission of light in one state and blocking transmission of light in a second state, but fails to disclose an image processor (8) for receiving an image that is to be projected and for controlling the power supply (2) to said lamp (3) and the size of said adjustable apertures of said display panel (5) according to a received image, as claimed. *See* column 1, lines 18-22.

Reversal of the rejection of claims 1-3 and 5-13 under 35 U.S.C. §103(a) as being unpatentable over the *Chen* patent in view of the *Okunuki* patent is respectfully requested.

II. Claim 4 is patentable over the *Chen* patent in view of the *Okunuki* patent and further in view of the *Haven* patent under 35 U.S.C. §103(a).

Obviousness is a question of law, based on the factual inquiries of 1) determining the scope and content of the prior art; 2) ascertaining the differences between the claimed invention and the prior art; and 3) resolving the level of ordinary skill in the pertinent art. *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). To establish *prima facie* obviousness of a claimed invention, all the claim

limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). *See* MPEP 2143.03.

Claim 4 was rejected under 35 U.S.C. §103(a) as being unpatentable over the *Chen* patent in view of the *Okunuki* patent and further in view of U.S. Patent No. 6,739,723 to Haven, *et al.* (the *Haven* patent).

The Appellants respectfully assert that the *Chen* patent, the *Okunuki* patent, and the *Haven* patent, alone or in combination, fail to disclose, teach or suggest each and every element of the Appellants' invention as claimed, as required to maintain a rejection under 35 U.S.C. §103(a). As discussed in Section I above, the *Chen* patent and the *Okunuki* patent fail to disclose:

a method for enhancing brightness and contrast in images wherein relative brightness of the parts of said image is determined from the maximum brightness in the parts of said image, as recited in amended independent claim 1.

The *Haven* patent also fails to disclose these elements.

Claim 4 depends directly from independent claim 1 and so includes all the elements and limitations of independent claim 1. The Appellants therefore respectfully submit that dependent claim 4 is allowable over the *Chen* patent, the *Okunuki* patent, and the *Haven* patent for at least the same reasons as set forth above for independent claim 1.

Reversal of the rejection of claim 4 under 35 U.S.C. §103(a) as being unpatentable over the *Chen* patent in view of the *Okunuki* patent and further in view of the *Haven* patent is respectfully requested.

8. SUMMARY

The Appellants respectfully submits that claims 1-13 fully satisfy the requirements of 35 U.S.C. §103. In view of the foregoing, reversal of the rejection of claims 1-13 is respectfully requested.

Dated: **December 18, 2008**

Respectfully submitted,  
PETER LURKENS, *et al.*

PHILIPS INTELLECTUAL  
PROPERTY & STANDARDS  
P.O. Box 3001  
Briarcliff Manor, New York 10510

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Eric M. Bram  
Registration No. 37,285  
Attorney for Appellants

CARDINAL LAW GROUP  
Suite 2000  
1603 Orrington Avenue  
Evanston, Illinois 60201  
Phone: (847) 905-7111  
Fax: (847) 905-7113

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/FRANK C. NICHOLAS/  
Frank C. Nicholas  
Registration No. 33,983  
Attorney for Appellants

9. CLAIMS APPENDIX

1. (Previously presented) Method for enhancing brightness and contrast in images provided by a projection-based presenter utilising a display panel (5) illuminated by at least one scrolling band of light and a lamp (3) as a light source for said at least one scrolling band of light, wherein said method comprises modulating the light output of said lamp (3) between different scrolling positions in a way that a higher light intensity is supplied by said lamp (3) when parts of said display panel (5) currently representing brighter parts of a respective image are illuminated by said at least one scrolling band of light than when parts of said display panel (5) currently representing less bright parts of said image are illuminated by said at least one scrolling band of light, wherein relative brightness of the parts of said image is determined from the maximum brightness in the parts of said image.

2. (Original) Method according to claim 1, wherein the average light intensity over time supplied by said lamp (3) for an entire image is kept constant.

3. (Original) Method according to claim 1 or 2, wherein said projection-based presenter utilises at least one vertically scrolling band of light, and wherein the light intensity supplied by said lamp (3) is adjusted for each horizontal line.

4. (Previously presented) Method according to claim 1, wherein said display panel (5) is illuminated by three scrolling bands of light of different colours.

5. (Previously presented) Method according to claim 1, wherein said light output of said lamp (3) is modulated by varying the power supplied to said lamp (3).

6. (Previously presented) Method according to claim 1, wherein said display panel (5) comprises adjustable apertures arranged in a matrix of rows and columns, and wherein changing fractions of said rows are illuminated by said at least one scrolling band of light.

7. (Original) Method according to claim 6, wherein the maximum aperture in each of said rows is adjusted to 100%, and wherein the other apertures of each of said rows are adapted such that a non-distorted brightness reproduction is maintained in each row.

8. (Original) Method according to claim 6, comprising: determining the maximum brightness of an image that is to be projected in each scrolling position; adjusting the apertures of said display panel (5) for each scrolling position in accordance with said image in a way that the maximum aperture is 100%; determining for each scrolling position the relative power which has to be provided to said lamp (3) for achieving said determined maximum brightness with said maximum aperture of 100% while maintaining the relation to the brightness of the other image parts; scaling the overall power level such that the average power of the lamp corresponds to a rated power level.

9. (Previously presented) Projection based presenter utilising a display illuminated by at least one scrolling band of light, which presenter comprises means (2,3,4,5,6,8) for carrying out the steps of claim 1.

10. (Original) Projection based presenter according to claim 9 comprising a display panel (5) with adjustable apertures arranged in horizontal lines; a lamp (3) for providing light for a projection; power supply means (1,2) for providing said lamp (3) with an adjustable power; a scanner (4) for directing said light output by said lamp (3) to said display panel (5) in subsequent horizontal bands; a lens (6) for projecting an image provided by said display panel (5); and an image processor (8) for

receiving an image that is to be projected and for controlling the power supply (2) to said lamp (3) and the size of said adjustable apertures of said display panel (5) according to a received image.

11. (Previously presented) Projection based presenter according to claim 9, wherein said lamp is a high pressure gas discharge lamp (3).

12. (Previously presented) Image processor (8) for a projection-based presenter utilising a display panel (5) illuminated by at least one scrolling band of light and a lamp (3) as a light source for said at least one scrolling band of light, comprising:

means for determining relative brightness of parts of a respective image from the maximum brightness in the parts of said image; and

means for controlling a ~~the~~ power supply to said lamp (3) for different scrolling positions in a way that a higher light intensity is supplied by said lamp (3) when parts of said display panel (5) currently representing the brighter parts of said image are illuminated by said at least one scrolling band of light than when parts of said display panel (5) currently representing the less bright parts of said image are illuminated by said at least one scrolling band of light.

13. (Previously presented) Regulation and controlling system for a projection-based presenter utilising a display panel (5) illuminated by at least one scrolling band of light and a lamp (3) as a light source for said at least one scrolling band of light, said regulation and controlling system comprising an image processor (8) determining the amount of power which has to be supplied to said lamp (3) for different scrolling positions in order that a higher light intensity is supplied by said lamp (3) when parts of said display panel (5) currently representing brighter parts of a respective image are illuminated by said at least one scrolling band of light than when parts of said display panel (5) currently representing less bright parts of said image are illuminated by said at least one scrolling band of light, and said regulation and

controlling system further comprising a lamp power regulator (2) supplying said lamp (3) with power, which lamp power regulator (2) adjusts the power supplied to said lamp (3) according to the respectively required power determined by said image processor (8), wherein relative brightness of the parts of said image is determined from the maximum brightness in the parts of said image.

10. EVIDENCE APPENDIX

None.

11. RELATED PROCEEDINGS APPENDIX

None.